

國立虎尾科技大學九十七學年度第一學期平時考(五)試題

班級:技電三甲 科目:線性代數 時間:2008/12/9(星期二) 12:10-13:10

1. Is the set $W = \left\{ \begin{bmatrix} x \\ y \\ z \end{bmatrix} : x \leq y \leq z \right\}$ subspace of R^3 ?

2. Find a basis of the kernel of the matrix $\begin{bmatrix} 1 & 2 & 0 & 3 & 5 \\ 0 & 0 & 1 & 4 & 6 \end{bmatrix}$.

3. Find a basis of the subspace of R^3 defined by the equation

$$2x_1 + 3x_2 + x_3 = 0.$$

4. If A is a 2×2 matrix such that $A \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 3 \\ 6 \end{bmatrix}$ and $A \begin{bmatrix} 2 \\ 1 \end{bmatrix} = \begin{bmatrix} -2 \\ -1 \end{bmatrix}$, find an

invertible S such that $S^{-1}AS = D$ where D is a diagonal matrix.